

Rans S-6ES Coyote II, G-BYPT

AAIB Bulletin No: 4/2004	Ref: EW/G2003/08/42	Category: 1.4
Aircraft Type and Registration:	Rans S-6ES Coyote II, G-BYPT	
No & Type of Engines:	1 Jabiru 2200A piston engine	
Year of Manufacture:	1999	
Date & Time (UTC):	24 August 2003 at 1750 hrs	
Location:	Compton Abbas Airfield, Wiltshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Nose leg collapsed, damaged propeller, engine shock loaded and damage to underside of engine cowling	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	51 years	
Commander's Flying Experience:	130 hours (of which 68 were on type)	
	Last 90 days - 18 hours	
	Last 28 days - 11 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and further enquiries by the AAIB	

History of the flight

The pilot had taken delivery of the aircraft one week prior to the accident. During the week leading up to the accident he carried out 10 flights in the aircraft without incident. On the day of the accident the pilot had decided to fly from a small farm strip near Milton Abbas to Compton Abbas in order to re-fuel. Upon arrival at Compton Abbas he lined up for an approach to Runway 26, which has a grass surface, and selected full flap. He reported that there was "no real wind". Following a normal approach the pilot reported that the aircraft touched down and then ballooned and stalled resulting in the aircraft hitting the ground nosewheel first. The nose gear collapsed and the propeller struck the ground. The pilot and his passenger were able to vacate the aircraft via the side doors.

Aircraft description

The Rans S-6ES is a two seat high wing aircraft with a permit to fly in the microlight category. G-BYPT was configured with a tricycle landing gear. The aircraft was equipped with a central flap lever between the two seats that is similar in operation to the handbrake lever in a car. The aircraft was also equipped with two throttle levers, connected via a torque tube across the cockpit in front of

the two seats, which rotated fore and aft. One throttle lever was located on the left side of the left seat and the other throttle lever was located in the centre, between the two seats (see Figures 1 and 2). The centre throttle was on the right side of the flap lever. The pilot's previous aircraft, a Rans S6-XL, was a similar aircraft with two throttle levers but it did not have a flap lever. From flying the S6-XL the pilot was used to controlling the aircraft with his left hand on the left throttle and his right hand on the control stick.

Figure 1: Flap lever in flaps 'UP' position and throttle in IDLE position

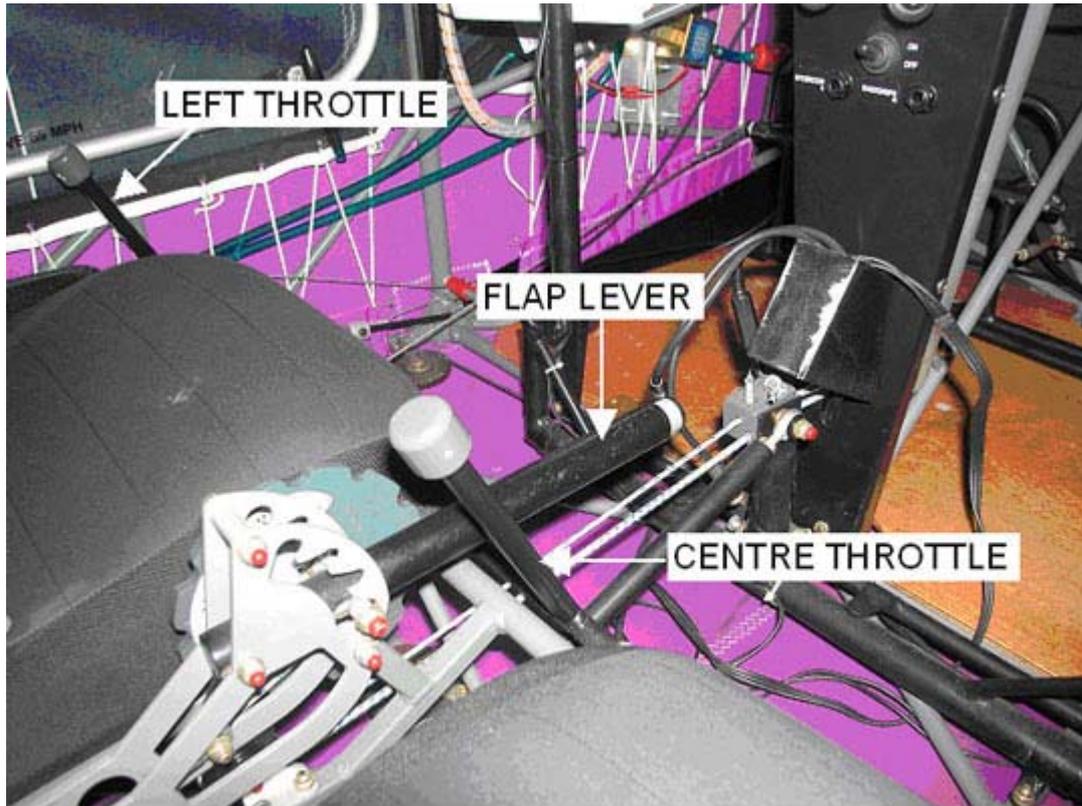


Figure 1 - Flap lever in flaps UP position and throttle in IDLE position

Figure 2: Flap lever in flaps full down position and throttle in idle position

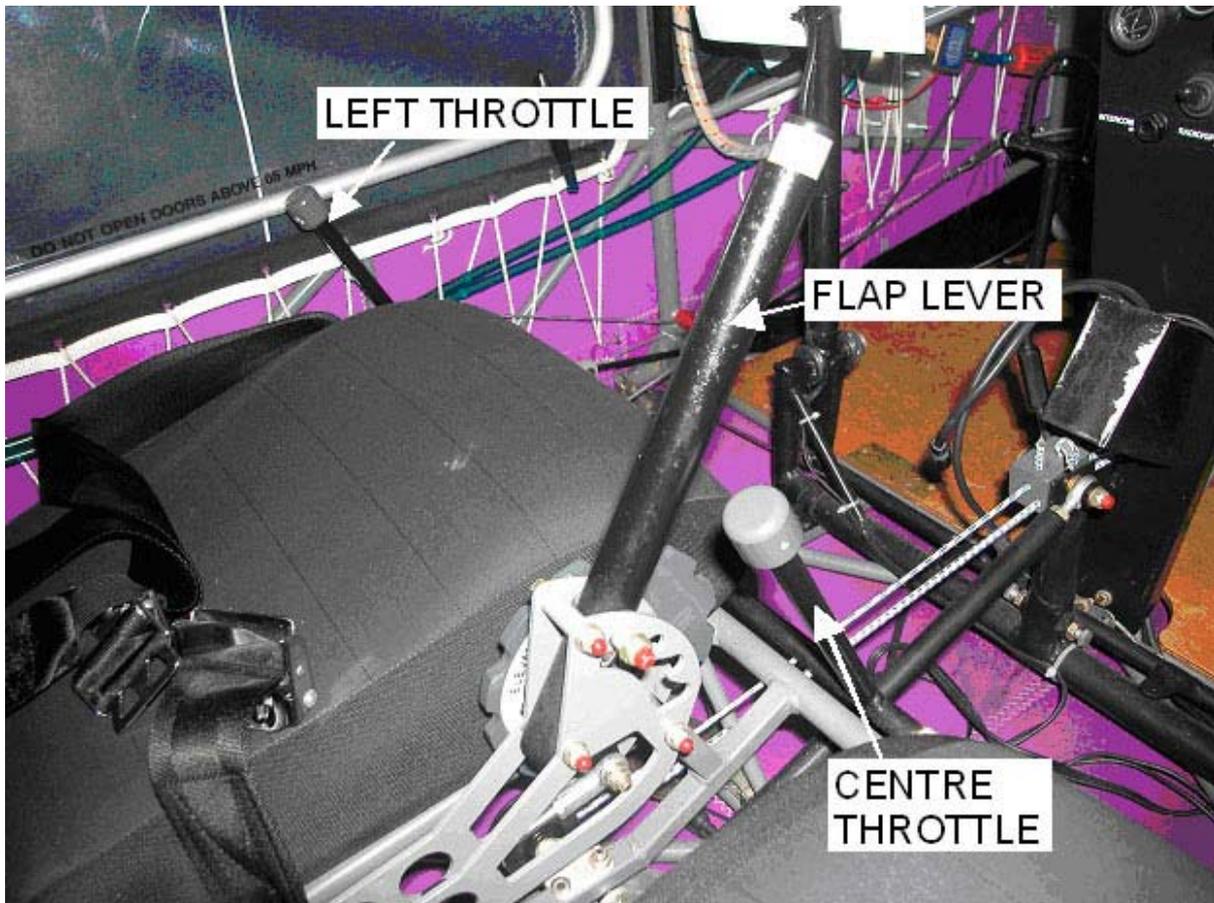


Figure 2 - Flap lever in flaps FULL DOWN position and throttle in IDLE position

Pilot's assessment of the cause of the accident

The pilot could not remember any detail of the accident and following the event he could not understand what had gone wrong. On the day after the accident the pilot examined the aircraft and noticed that the throttle lever was in a mid position. The pilot believes that when he reached down to retract the flaps after touchdown, he accidentally nudged the centre throttle lever forwards and the unexpected power increase caused the aircraft to balloon. The pilot cited two previous occasions when he had accidentally nudged the centre throttle forwards while attempting to extend the flap. The pilot also said that he had only recently been instructed by a flying instructor to retract flap immediately after landing to assist in keeping weight off the nosewheel during the roll out.

Discussion

The pilot's recollection of advice from an instructor to retract the flaps immediately after landing was a misunderstanding. He had been given advice and a demonstration regarding the use of flap but, according to the instructor, he had not been advised to raise the flap immediately after touchdown.

The aircraft kit manufacturer in the USA was contacted concerning this accident and they stated that they were not aware of any reports of problems involving accidental throttle movement while selecting flap. The UK distributor of Rans aircraft also reported that they were not aware of any problems involving accidental throttle movement.

When the throttle is closed (as one would expect at touchdown) the flap handle is sufficiently far forward of the throttle handle that it is unlikely that the throttle could be accidentally nudged while actuating the flap. However, a pilot unfamiliar with the location of the flap lever might accidentally grab the throttle lever by mistake and nudge it forwards. Regardless of the cause of this accident, the ergonomics of the throttle lever positions are poor. If a pilot in the left seat decides to control the aircraft with his right hand, his left hand will control the throttle on his left side. In order to actuate the flap the pilot must then either swap hands on the control stick or release the control stick completely to actuate the flap with his right hand. Some pilots reportedly use both throttle levers depending upon the situation. The new Rans S-6ES kit comes equipped with a single central console mounted push-pull throttle although the old twin fore and aft throttles can still be purchased as an option.